Section 4-4: Probability of Compound Events

By the end of this lesson, you should be able to answer:

- How do you find probabilities of compound events?
- What are mutually exclusive compound events?

Where you might see this in the real world:

- Games, probability, number sense

Define the following terms:

1. Compound event

2. Mutually exclusive

Often times we will be looking for the probability of one event and the probability of another event occurring, such as what if I roll a 6 and a 5 when I roll two dice.

Example 1: Two 6-sided dice are rolled. Is P(sum is at least 8) less than or greater than 50%?

We need to figure out a few things on this example. First, what is the sample space? Second, what are our favorable outcomes? Finally, we need to find the theoretical probability.

Sometimes, events cannot occur at the same time. To find the probability of mutually exclusive events, we find the probability of each event, then add it up!

Example 2: Two 6-sided dice are rolled. Find P(the sum is 5 or 12).

You will notice that for these examples, it has been very important for us to look at the entire sample space of what we are dealing with. This way, we were able to find out how many favorable outcomes there were just by looking at each event.

Sometimes, we will use a Venn diagram to help determine our probabilities. A Venn diagram is a visual representation showing how events relate by having a circle for each possible outcome and placing the events in the circles.

Example 3: From nine students (Austin, Susie, Chantel, Bethany, Derik, Allison, Anthony, Becca, and Sawyer), the teacher will choose a student at random to work a problem at the chalkboard. What is the probability that the student is a girl or has a name that begins with A?

Practice: A single card is drawn from a set of alphabet cards marked A to Z. Tell whether or not the events are mutually exclusive, then find the probability.

1. P(K or P)

2. P(a letter before E or a letter after W)

3. P(a vowel or a letter before M)

4. P(a consonant or a letter after S)

5. P(a vowel or a consonant)

6. P(C or a letter after J)

Problem Set:

"Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand." – Albert Einstein